one type of segment being sensitive to the value of an external physical parameter or chemical compound activating said at least one type of segment;

using refractive index profile dependent attenuation of guided modes passing transitions between two different segments; and

measuring the light propagation in the direction of the guided modes a predetermined arbitrary length distribution to determine a value of said external physical parameter or chemical component, and in case of intensity modulation, to use said value to control the ratio between the amount of light entering the activable lightguide device in the form of one or more guided modes and the amount of light leaving the activable lightguide device in the form of one or more guided modes and the amount of light leaving the activable lightguide device at the exit in the form of similar guided modes.

14. (Amended) A method as claimed in claim 25, wherein said activable light guide device comprises a light guide channel including an inclusion layer and/or a light transmitting layer of an electro-optical material, wherein, in order to obtain light modulation, segments of one type are activated by means of an electrical potential difference between two electrodes patterned in an electrically conductive intermediate layer on either side of the light guide transmitting channel.

15. (Amended) A method as claimed in claim 25, wherein use is made of an inclusion layer and/or a light transmitting layer comprising a thermo-optical material and wherein segments of one type are activated by means of an electrical current driven through an electrical conducting intermediate layer introducing a segment pattern corresponding with a predetermined pattern of segments activated by the external physical parameter or chemical compound.

16. (Amended) A method as claimed in claim 25, wherein the integrated optical light guide device is provided with a channel type light guide and in that the activable element comprises two types of segments, the channel widths of the two segment types being adapted to each other to obtain a maximum guided mode transmission for a predetermined value of the physical parameter or chemical compound.

17. (Amended) A method as claimed in claim 25, wherein the light guide device is constructed as a quasi-digital sensor showing a large number of segments in order to obtain a narrow transmission peak around a predetermined value of the physical parameter or chemical compound its specific value being a function of the actual value of said physical parameter or chemical compound.

19. (Amended) A method as claimed in claim 25, wherein the material and/or the refractive index profiles of relevant types of segments are adapted to each other to enable wavelength sensitive measurements by measuring the light emitted from different locations of the light guide device enabling determination of a power spectrum of the transmitted light.

20. (Amended) A method as claimed in claim 25, wherein said activable light guide device comprises two types of segments S1 and S2, wherein S1 is activated by a quantity A and S2 is activated by a quantity B different from A and wherein S1 and S2 are incorporated in a feedback circuit generating, based on a criterion of a constant transmission by the activable light guide device, the relative index profile of S2 is maintained at a value equal to that of the refractive index profile of S1 by applying a suitable value B, to correlate the quantity A with a set value of quantity B.